Research Paper: The Relationship Between Patients' Perceived Health Status and Trust Propensity and Privacy Calculus

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ABSTRACT

Background: Patients need peace of mind to disclose their information to medical staff and with the lack of trust or in specific health status, they may avoid providing sensitive information for their care or might change the information. This research was done to examine the impact of perceived health status and trust propensity on privacy calculus.

Methods: In this analytical research three questionnaires, namely Trust Propensity, Health Status (Goldberg and Hiller), and Privacy Calculus were used. The statistical population consisted of the patients of one of the Ahvaz hospitals. Following sample size determination using the Morgan table, 379 usable questionnaires were collected non-randomly. The majority of respondents were younger than 30 and male. After face, content, and construct validities, the reliability was examined through Cronbach's alpha and composite reliability and the hypotheses were examined by partial least square method, using SmartPLS.

Results: Patients' privacy calculus was associated with trust propensity and perceived health status ($P<0.05$), while trust propensity had no correlation with perceived advantages and disadvantages of privacy disclosure. The relationship between perceived health status and advantages and disadvantages of information disclosure was positively significant ($P<0.05$).

Conclusion: In order to improve patients' provision of rich information to medical staff, their trust propensity should be improved.

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1. Introduction

Privacy is an essential principle of humanity and one of the fundamental rights of each individual [1]. It is also an urgent need that is especially respected in health care and nursing organizations [2]. The personality of the patient, in terms of beliefs, culture, beliefs, and ethics is a very important factor in the improvement of the disease [2, 3], as the World Health Organization (WHO) in 1994 reported the principles of medical ethics and the patient rights. Nowadays, patient privacy as a part of patient rights with respect to individuals is considered the foundation of patient care, and the importance of patient privacy as a principle of medical ethics is increasing day to day [4]. According to the WHO, patient rights are a set of rights that people in health care systems are obliged to adhere to [5]. The patient's rights are his or her legitimate and reasonable physical, mental, and social needs, which are crystallized as health care standards and regulations, and health care providers are responsible for their implementation [6].

Patients' sensitivity to privacy in hospitals has led them to calculate their privacy. Privacy calculus means that patients are evaluated based on the advantages and disadvantages of disclosing their secrets and violating their privacy in medical centers [3, 7]. This means that individuals, using an approach based on cost-benefit analysis, evaluate the benefits and disadvantages of their privacy violations and then disclose their personal information [7]. However, medical care and health status are still poor in many health centers, with little attention given to privacy, and this weakness in patient control will negatively affect patient health and patient-physician trust [3]. On the other hand, gaining patient confidence is also one of the main goals and missions of the health care system so that if patients with high levels of satisfaction and trust cooperate with the medical staff, they will be given important information and more than what they were instructed. However, patient confidence in medical staff is of paramount importance and enhances the effectiveness of treatment. Therefore, trust between physician and the patient should be considered [8].

Another issue is the health state of the individual. Patient perception of his overall health condition is called perceived patient health. The patient's health status is poor [3]. Overall health is a multidimensional issue. Even today, the spiritual aspect is considered in addition to the physical, psychological, and social aspects affecting overall health. It should be noted that different aspects of health or illness affect each other and are influenced by each other. If physical problems affect one's mental state, both of them affect the body, and the diseases in society affect both physical and mental aspects of health [3]. This means that people who are with poor health status are expected to have more confidence in their healthcare providers due to the need for faster access to health care and, on the other hand, are worried about suffering and the urgent need for treatment. and have little regard for their privacy [7]. As a result, the relationship between the patient's perception of his health and his privacy calculation needs further investigation.

Researchers have done numerous studies in the past about patients' privacy in the hospital. For example, it has been illustrated that implementing a fair system for supervision of medical staff in hospitals, as well as compilation and execution of instructions regarding the certainty and severity of sanctions against violation of patients' privacy can reduce the likelihood of privacy breaches in hospitals [1]. Ghaziasgar et al. [2] concluded that hospitals should also communicate with the patients about their level of control over their sensitive data to reduce their concerns on the violation of their privacy. In another study, researchers indicated a positive role of clinical guideline implementation in respect of the patient and hospital rights [9]. It has also indicated that the level of compliance with elderly patients is low while providing nursing care and it is suggested that educating nurses and health care providers about elderly patients' privacy and strengthening the supervisory performance of managers and authorities is necessary [10]. Other studies have shown that nursing staff training can improve the privacy of patients admitted to the emergency department, which can be an important step towards holistic nursing care [11, 12]. A study on 330 elderly patients admitted to the selected hospitals in Tehran showed that the level of privacy and satisfaction of the elderly patients was at an average level in most dimensions [13].

Despite the relatively favorable patient privacy, patient privacy is still not fully respected in cardiac care units [14]. However, this review emphasizes the particular attention of nursing authorities to planning and implementing measures to improve this important issue. Another study showed that individuals' personal characteristics and experiences were correlated with assessments of dependent privacy [7]. Although as mentioned, numerous research has paid attention to the status of privacy in health centers and how it is planned to be maintained, little attention has been paid to the drivers and barriers of patients' privacy calculus [3]. In other words, little is known on the factors predicting patients' evaluations of the advantages and dis-

advantages of providing their sensitive and private health information to medical staff [3], known as privacy calculus [7]. We did not find a study on the relationship between perception of health status and patient confidence in privacy accounting; thus, this study was done to study the relationship between perception of health status and patient confidence in privacy accounting.

2. Methods

The present research was an analytical-correlational study. The study population was consisted of patients, with psychological disorders, such as contagious and venereal diseases, in a hospital in the west of Ahvaz. According to Morgan's table, 384 cases were selected by non-random sampling method and after the distribution of questionnaires, 379 cases answered the research questionnaires.

In order to adhere to the research ethics, patients were first asked to voluntarily study and respond to the questionnaires. The patients were allowed to refuse to answer questions at any time and were excluded from the study. It was guaranteed that their identities and the content of each response will be kept confidential.

Data were collected using a questionnaire, which its first part was a demographic data questionnaire, including gender, age, and marital status, and the second part was the Trust Propensity [14], Health Status [15], and Privacy Calculus-including advantages and disadvantages Questionnaires [16]. The exact number of questions for each questionnaire is listed in Table 1. The scores of each reliability questionnaire ranged 3-15. The scores of the Health Status questionnaire, Trust Propensity Questionnaire, and Privacy Calculus Questionnaire ranged 28-140, 3-15, and 3-15. A higher score on each questionnaire indicates a better responsive status for each of the variables studied.

The face and content validity of the questionnaire was assessed according to the opinions of some statistical samples and professors and health and management experts. The construct validity was confirmed by confirmatory factor analysis and the reliability of the questionnaire was measured by Cronbach's alpha and composite reliability. To evaluate the construct validity, the Average Variance Extracted (AVE) and factor loadings were used. As shown in Table 1, the AVE was greater than 0.5. In addition, the factor loadings of all items increased by more than 0.5. Also, as shown in Table 1, Cronbach's alpha and composite reliability for each variable were greater than 0.7 indicating the reliability of the instrument used.

Also, as mentioned in Table 2, the Fornell-Larcker criterion was followed, which is used to evaluate validity. In this rule, the mean value of the variance extracted for each latent variable must be greater than the correlation of this variable with the other model variables. Because all the validity rules in this study were followed, as a result of divergent and convergent validity, the construct validity was accepted i. Also, as noted in Table 1, Cronbach's alpha for each variable is greater than 0.7, indicating the reliability of the instrument used.

This study used descriptive statistics and SPSS 19 software to test the hypotheses and Partial Least Squares (PLS) method and SmartPLS software for data analysis.

3. Results

As shown in Table 3, most of the respondents were male (52.5%), while the largest group of respondents was under the age of 30 (43.5%) and single (79.9%).

The R^2 values for the variables of health status and perceived disadvantages and advantages, and trust propensity were 0.00, 0.49, 0.50, and 0.00, respectively. The redundancy values for health status and perceived disadvantages and advantages, and trust propensity were 0.00, 0.23, 0.34, and 0.00, respectively. The effect size for health status and trust propensity was 0.23 and 0.16, respectively. These values indicate a good model fit.

The results of the path coefficient and t-test showed that trust propensity at a significant level of less than 0.05 was significantly correlated with calculus ($P<0.05$). There was a significant relationship between health status and calculus ($P<0.05$). Perceived health status was significantly associated with the perceived benefits of providing personal information. There was a significant relationship between health status perceived disadvantages of providing personal information ($P<0.05$) (Table 4).

4. Discussion

The relationships between trust propensity and perceived health status with privacy calculations between patients were statistically confirmed. In explaining this finding, it can be said that because the respondents had trustworthiness towards the medical staff, this affects their sensitivity and judgment regarding the presentation and breach of their personal information. The more trustworthy patients are, the less sensitive they are to their privacy, and the more patients trust the medical staff, the less fear of providing personal information and the better the treatment process. It can also be said that health

Table 1. The tool specifications, reliability, and validity

Variables	Number of Questions	Source	Cronbach's Alpha	Average Variance Extracted (AVE)	Compound Reliability (CR)
Trust propensity	3	[8]	0.70	0.66	-
Health status	28	[15]	0.90	0.56	0.78
Perceived advantages	3	[16]	0.77	0.69	0.91
Perceived Disadvantages	3	[16]	0.76	0.57	0.87

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status and the extent, to which a person finds himself in need of information to receive health care can influence his sensitivity to personal information. In one study, researchers found that the Italian community showed less tendency to trust, organizational trust, privacy concerns, and perceived high risk [17].

Statistical analysis also supported the relationship between perceived health status and perceived benefits of providing personal information. When patients are in better overall health status, they are in a position to better evaluate the advantages and disadvantages of providing their sensitive health information to the staff and behave accordingly. In addition, privacy calculus and its perceived benefits are influenced by patients' health status and they feel more privileged about disclosing their personal information when they hope to improve their health. Patients need a comfortable feeling of disclosing information to physicians, nurses, and other health professionals, whereas they may be reluctant to disclose important information about their health or to distort information without trust. In this regard, Hus and Shih [18] showed that the individuals' psychological personality influences their behavior in protecting their privacy.

The results of the statistical analysis did not confirm the relationship between trust propensity and the perceived advantages and disadvantages of providing personal information. As mentioned earlier, the researchers failed to find a similar study despite an extensive search. The patient needs to trust the medical staff to provide their personal information, but he does not judge the benefits and disadvantages of providing personal information solely on the basis of trust in the medical staff. The relationship of trust propensity and perceived advantages and disadvantages may be indirect; for example, because patients need to feel comfortable for disclosing information to physicians, nurses, and other health professionals, and without the confidence, they may be reluctant to provide important information or by misrepresenting information, trust can indirectly lead to transparent and effective communication, facilitate interpersonal exchange, calm the patient, and eliminate the fear of the patient. These factors can reduce perceived disadvantages or benefits. However, no indirect relationship was found between these factors.

This study is not free from limitations. Perhaps, the most important limitations of this study can be seen in the two factors of perceived health rather than the actual health of patients and also in the statistical population that was restricted to Ahwaz. Future studies are suggested to examine the psychological and psychological status of health care professionals, such as occupational stress and lack of professional identity and their impact on patient's willingness to trust and their behavior about their privacy.

5. Conclusion

The results showed significant relationships between trust propensity and perceived health status and privacy

Table 2. The Fornell-Larcker criterion

Variables	Health Status	Perceived Disadvantages	Perceived Advantages	Trust Propensity
Health status	0.78			
Perceived disadvantages	0.66	0.75		
Perceived benefits	0.66	0.46	0.86	
Trust propensity	0.42	0.46	0.54	0.81

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Table 3. Demographic information of the subjects

Property		No. (%)
Gender	Man	199 (52.5)
	Female	180 (47.5)
Age (y)	Under 30	165 (43.5)
	31-40	122 (32.2)
	Over 40	92 (24.3)
Marital status	Single	303 (79.9)
	Married	76 (20.1)

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calculations, indicating that patients with less trust propensity and more perceived health problems tend to have more privacy calculus when approaching health staff in the studies hospital. The results also confirmed the positive relationship between perceived health status and perceived benefits of providing personal information, due to the fact that if patients think that they have more serious health problems, they are more prone to think diplomatically when speaking out about their health problems. The results; however, did not confirm the relationship between trust propensity and the perceived merits and demerits of providing personal information, implying that perceived advantages and disadvantages of providing sensitive and private information to health staff are independent of trust propensity.

When a patient can trust medical staff, he has a complete sense of freedom to provide information. To promote trust between patients and the medical staff, communication skills should be trained for the medical staff. This makes them more capable of gaining the trust of patients. Medical staff should offer efficient advice and guidance using evidence-based decision aids, appropriate for each patient's particular needs, conditions, and circumstances, and discuss with each patient about possible options to make a mutual, rational decision. In addition, hospitals' management should also take care of other factors, such as the cleanliness of the hospital environment or the professional characteristics and appearance of the medical staff, as these factors are likely to play a significant role in gaining patient confidence. Other suggestions, including devoting time to health care and avoiding stereotyped behaviors in providing services to patients, as well as encouraging patients to provide more information could be emphasized. It is also recommended to make patients justified about the advantages of providing timely health information to medical staff and warn against the disadvantages of not doing so. This removes patients' negative feelings about providing their sensitive health information and boosts their trust propensity in medical staff.

Table 4. The results of hypotheses, path coefficients, and values

Research Assumptions	Path Coefficient	T-value	Result
Trust propensity -> Calculus	-0.18	-4.6	Confirmed
Health Status -> Calculus	0.65	19.1	Confirmed
Trust propensity -> Perceived Benefits	0.24	1.8	Rejected
Trust propensity -> Perceived Disadvantages	0.60	1.3	Rejected
Health status -> Perceived benefits	0.55	15.3	Confirmed
Health Status -> Perceived Disadvantages	0.67	2.9	Confirmed

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Ethical Considerations

Compliance with ethical guidelines

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Authors' contributions

Study design: Fereshteh Shiri; Data collection and analysis: Fereshteh Shiri, Hamid Reza Peikar; Manuscript preparation: Hamid Reza Peikar, Narges Zamani; All authors have read and approved the final version of the manuscript.

Conflict of interest

The authors declared no conflict of interest.

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